

## SOCIAL FACTORS AND CORONARY HEART DISEASE: SOME GENERAL INTRODUCTORY REMARKS

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DISEASES have their places as well as their times. Stone-age societies have been characterized by chronic infections and parasitic infestations; primitive societies by recurrent famines; and urban civilizations, until recently, by epidemics of infectious disease. Modern industrial societies seem to feature a new set of diseases: obesity, arteriosclerosis, hypertension, diabetes and wide-spread symptoms of anxiety. Arising from some of these, and possibly from all of them, are two of the three greatest killers and disablers of our own place and time: coronary heart disease and stroke. One naturally asks himself, what are the features of our society that might account for this?

It has been this question that has brought the social scientist into medicine at a really substantive level. In the past the social scientist has studied the attitudes of medical students, the communication systems of hospital wards, and the status relationships of various sorts of practitioners; but, now, beginning with monumental works such as that of Hollingshead and Redlich, he has begun to ask what are the conditions of society which make certain diseases possible, and to what extent does the society itself define the meaning of illness and disability? This has brought him into contact with the epidemiologist, and sometimes into collision with him.

Traditionally epidemiology has been the branch of medical science that deals with the natural history of disease and its distribution within human populations. It began in the nineteenth century with the study of the great epidemic diseases, and its attitudes and methods, as well as its name, still reflect its origins. Until recently it was almost entirely biological in orientation. It was concerned primarily with agents and vectors, with the precise definition of disease entities, and with precise biological and physical measurements on the host. Out of this orientation the epidemiologist learned a profound respect for clear definitions, for exact and replicable measurements, for careful sampling, and for the cautious treatment of data. He developed a healthy awareness for the variability of biological data, a profound skepticism of small samples, and a considerable impatience with those who would attempt to determine the prevalence of conditions such as coronary heart disease or hypertension without taking into account all of the factors that might influence the apparent prevalence of such a condition in a given sample. He has a distinctly raised eyebrow for those who are not cognizant of the limitations of their data, and who, for example, might be naïve enough to believe that a man could really tell you whether his father or uncle had diabetes mellitus or angina pectoris, if you asked him. Epidemiologists have not been impressed by many investigations of the relation between social factors and disease, partly because many of those who have carried out such investigations have failed to comply with the principles and practices that are known to be important in the study of the natural history of disease.

In this characteristic the epidemiologist is no different from the social scientist. The social scientist, too, has learned a profound respect for clear definitions, for exact and replicable measurements, for careful sampling, and for cautious treatment of the data. He has developed a healthy awareness of the systematic biases inherent in some kinds of social data, and a profound skepticism for samples made up of "volunteers", "patients" or employees selected by their employers. He has a raised eyebrow for those who would measure social class solely by income, or who are naïve enough to believe that men matched by age, height, weight, and race must be otherwise comparable. Sociologists have not been impressed by many investigations of the relation between social factors and disease, because many of those who have carried out such investigations have failed to comply with the principles and practices that are known to be important in the study of social systems.

One can be sure that many of the collisions between social scientists and biological scientists arise from technical differences rather than from substantive differences. Each is more sophisticated in the treatment of the information from his own field, and each is likely to be cavalier or naïve in his handling of the data from the field with which he is not familiar. This shoe fits as well on the foot of the medical scientist as it does on the foot of the social scientist.

Yet it would be wrong to pretend that there are not substantive differences between the point of view of the social and biological scientist as he looks at disease. To a medical scientist a man may be a "sick man" because he has an abnormality of his electrocardiogram, whether he is aware of it or not; to a social scientist a man may be a "sick man" because he has assumed a "sick role", and he may be "recovered" when he has resumed his usual social role, regardless of what may have happened to his electrocardiogram. The medical scientist is likely to focus upon the abnormal electrocardiogram, and to try to prevent people with abnormal electrocardiograms from doing things that might shorten their lives. The social scientist is likely to see that such activities by physicians sometimes create more illness than they prevent. When a social scientist points out that the mortality from coronary heart disease in various countries may be as closely associated with the number of telephones per capita as it is with the dietary intake of animal fat, the medical scientist is likely to describe this as a "nonsense correlation", because he does not see the possible connection between the two variables. On the other hand, when a social scientist describes obesity, blood pressure and serum cholesterol as "physiological variables" that are somehow divorced from "psychological" and "social" variables, the biological scientist is likely to throw up his hands—for how else could the society influence the health of a man other than through the physical environment and its agents, through what he eats, drinks and inhales, or through his activities and physiological adaptive reactions? To make advances in the field of social science and medicine it may not be enough simply to have epidemiologists who have learned some of the techniques of the social sciences, or sociologists who have got up a bit of epidemiology. The comprehension of the relation of disease to society may move forward only as we develop scientists who have a real understanding of both social science and of biology.

In any case, we can be sure that as physicians and social scientists work together, there will be an occupational hazard for both: the questioning of cherished beliefs and concepts by irreverent colleagues who have a different point of view. Those who may wish to expose themselves to this hazard might begin with the contents of this issue of *Social Science & Medicine*. Here CROOG, LEVINE and LURIE have contributed an important review of the literature bearing on our understanding of the coronary patient and his recovery from an

acute myocardial infarction. They find no clear agreement on the relation between the physical status of the patient, his premorbid personality, and the phenomena of recovery. They indicate that there are those who think that much of the behavior of people who have had heart attacks is determined more by their perception of a socially defined "sick role" than by their physical disabilities. They even go as far as to cast a critical glance at that medical holy-of-holies, the doctor-patient relationship; and they question the dictum of the Massachusetts Heart Association that the first principle of dealing with heart disease is "To find a doctor you respect, obey him and cling to him as though he were your most precious possession, as he is".

To add to the discomfiture of the physician, New and his colleagues, who have studied "The support structure of heart and stroke patients", move in the same direction. They suggest that the various professional aides who are concerned with the treatment of the heart and stroke patient may have a very different view of his capabilities, while the patient may have yet another view, and that the patient's view may be what ultimately governs his rehabilitation.

On the other hand, when it comes to the paper by WARDWELL, HYMAN and BAHNSON on "Socio-environmental antecedents to coronary heart disease in 18 white males", the epidemiologist may find that it is his turn to ask impudent questions. These authors report that Protestants, and especially middle-class Protestants, of Middlesex County, Connecticut have a disproportionate amount of coronary heart disease. They base their conclusions on a study of all of the first myocardial infarctions in white males that were reported by physicians and hospitals in this county during a year and a half. They have compared the men who had these infarctions with an aged matched random sample of 435 other white men who reported on interview that they had no history of coronary heart disease and no symptoms of this illness. To this the epidemiologist might first comment that as many as 25 per cent of the myocardial infarctions in this county might be unrecognized and unreported, as they are in Framingham, Massachusetts [1]. There is some reason to believe that more of these unreported cases may occur among less well educated people in blue-collar jobs. If this is true, the sample might well under-represent coronary heart disease in men in this category. The epidemiologist might also comment that an interview is not a very good way to select people who are free of coronary heart disease. About one-third of all cases of coronary heart disease that are detected on examination during surveys are based on electrocardiographic abnormalities. In many cases the subject had not been aware that these were present. In addition to this, a very large proportion of all myocardial infarctions occur in people who have no previous evidence of coronary heart disease that is detectable by any means [2]. It seems quite likely that a control group selected solely on the basis of an interview will contain many people who have coronary heart disease. If it is true that better educated men of a higher social and economic status are more likely to go to doctors and to have electrocardiograms, might not people in this group be more likely to know about electrocardiographic abnormalities? Would not such people then be more likely to exclude themselves from the control group? If a large proportion of the better educated middle- and upper-class people in Middlesex County, Connecticut are white Protestants of Yankee background, as they do seem to be, might this not create a bias in the data? Reflecting on these considerations, on the rather small number of cases involved in the study, and on the possibility that the Protestants, Catholics and Jews in Middlesex County, Connecticut may not be an entirely representative sample of the people in these religions as they are distributed around the world, the epidemiologist, I think, would advise that we should be very cautious

about drawing any conclusions about the relation between religion and coronary heart disease based on these data.

Intellectual interchanges of this sort are rather like a cold shower. They are not entirely pleasant, but they are stimulating, and they do wake us up. However, if we can survive these, they should make us more healthy—intellectually, that is.

#### REFERENCES

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